

Peng-Yu Chen

📍 Columbia, SC, USA ✉ pengyuc@email.sc.edu 🔗 pengyu-gis.github.io 🌐 Pengyu-gis

Research Interests

- Applying deep learning and spatial statistics to analyze human and environmental spatial behavior.
- Leveraging AI in remote sensing for environmental monitoring and conservation efforts.
- Integrating computer vision and multimodal data analysis for urban sensing and planning.

Education

- M.S. University of South Carolina, Geography** Sept 2024 – May 2026
 • Advisor: Dr. Sicheng Wang || TA scholarship
- B.S. Wuhan University of Technology, Geographic Information Science** Sept 2020 – June 2024
 • Advisor: Dr. Wei Cui || Chair of GIS Association
- Wuhan University, Geographic Information Science** July 2023 – Aug 2024
 • Visiting Student. Advisor: Dr. Teng Fei

Publications

- Where are GIScience Faculty Hired from? Analyzing Faculty Mobility and Research Themes Through Hiring Networks** Aug 2025
 Yanbing Chen, Jonathan Nelson, Bing Zhou, Ryan Zhenqi Zhou, Shan Ye, Haokun Liu, Zhining Gu, Armita Kar, Hoeyun Kwon, **Pengyu Chen**, Maoran Sun, Yuhao Kang
<https://doi.org/10.1080/15230406.2025.25675643> (Cartography and Geographic Information Science)
- A GAN-Enhanced Deep Learning Framework for Rooftop Detection from Historical Aerial Imagery** July 2025
Pengyu Chen, Sicheng Wang, Chengyang Wang, Senrong Wang, Beiao Huang, Lu Huang, Zhe Zang
<https://doi.org/10.1080/01431161.2025.2534994> (International Journal of Remote Sensing (Cover Article))
- Cross-Modal Urban Sensing: Evaluating Sound-Vision Alignment Across Street-Level and Aerial Imagery** June 2025
Pengyu Chen, Xiao Huang, Teng Fei, Sicheng Wang
<https://doi.org/10.48550/arXiv.2506.03388>
- Intelligent Bear Prevention System Based on Computer Vision-An Approach to Reduce Human-Bear Conflicts in the Tibetan Plateau Area, China** Mar 2025
Pengyu Chen, Teng Fei, John A. Kupfer, Yunyan Du, Jiawei Yi, Yi Li
<https://doi.org/10.48550/arXiv.2503.23178> (Ursus (Accepted))
- Socio-demographic inequalities in the impacts of extreme temperatures on population mobility** June 2023
 Xinyue Gu, **Pengyu Chen**, Chao Fan
<https://doi.org/10.1016/j.jtrangeo.2023.103755> (Journal of Transport Geography)
- Multi-Agent Path Optimization Based on STA* Algorithm** Nov 2022
 Ruixiang Cheng, Xinyu Wang, **Pengyu Chen**, Jiaxin Liu
<https://doi.org/10.1145/3582935.3583037>
- Impacts of Ethiopia Dam on Vegetation and Water and Ecological Countermeasures** Nov 2022
Pengyu Chen, Tengyuan Liang, Zibin Wu

Ongoing Projects

Spatial Model of Crash Fatalities by Examining Effects of Infrastructural Factors

Co-first author | Accepted by Transportation Research Board(TRB) Conference | Oral Presentation

Deep Learning in the Urban Forest: High-Resolution Canopy Change Detection in Columbia, SC (2005-2023)

First author

Research Experience

University of South Carolina, Research Assistant

Columbia, South Carolina

- This project is funded by City of Columbia.
- Training a canopy segmentation model of 4 years NAIP remote sensing imagery.
- Analysis canopy loss/gain across each neighborhoods in Columbia.
- Supervisor: Dr. Cuizhen Wang, Dr. Kirstin Dow

July 2025 – Aug 2025

Wuhan University, Visiting Student & Research Assistant

Wuhan, China

- Trained YOLO-based object detection algorithm and deployed model compression to the K210 microcontroller.
- Application: Detecting Tibetan brown bears and using K210 to drive water pumps and bear spray.
- Supervisor: Dr. Teng Fei

July 2023 – July 2024

Harvard University Spatial Data Lab, Research Intern

Remote

- Spatial Data Laboratory (SDL) Internship Program
- Geographic Big Data Analytics, Spatio-Temporal Data Mining
- Supervisor: Dr. Yuhang Pan, Peking University

May 2024 – Oct 2024

Clemson University, Research Intern

Remote

- Data processing, data cleaning, and curve generation using MATLAB and Python.
- Published paper in the Journal of Transport Geography.
- Supervisor: Dr. Chao Fan

Sept 2022 – Jan 2023

Teaching Experience

Landform Geography (GEOG 201), Graduate Lab Instructor, 2024 Fall

Landform Geography (GEOG 201), Graduate Lab Instructor, 2025 Spring

Landform Geography (GEOG 201), Graduate Lab Instructor, 2025 Fall

Professional Experience

Xuzhou Construction Machinery Group (XCMG) - Road Machinery Division, Algorithm Intern

Xuzhou, China

Jan 2022 – Mar 2022

- Developed digital roads using Leica software and presented results with ArcGIS.
- Implemented curve fitting algorithms to support digital road modeling applications.
- Supervisor: Mr. Bowen Wu

Leading Experience

GISinfo (Subprojects under GISphere), Development Team Leader, Council member

Feb 2022 – present

- Develop backend using Django framework with Django REST Framework APIs and MySQL database. Develop frontend using VUE and Maptable.
- Manage user demand pool, leading backend and frontend development.
- website: <https://gisphere.info/>

Scholarship & Awards

Graduate Instructor Assistant Scholarship (start from 2024 fall)

AAG Graduate student Travel grant

2022 Huazhong Cup Mathematical Modeling Competition, Second Prize

2022 MathorCup mathematical modeling competition, Third Prize

2021 Huazhong Cup Mathematical Modeling Competition, Third Prize

Technologies

Programming Languages: Python, C#

Software: MySQL, ArcGIS, QGIS, MATLAB

Languages: English (TOEFL iBT 102), Chinese(First language)

Services

Peer Review for Academic Journals: Computational Urban Science

Voluntary Service: Board members of GISphere